

FIG.1

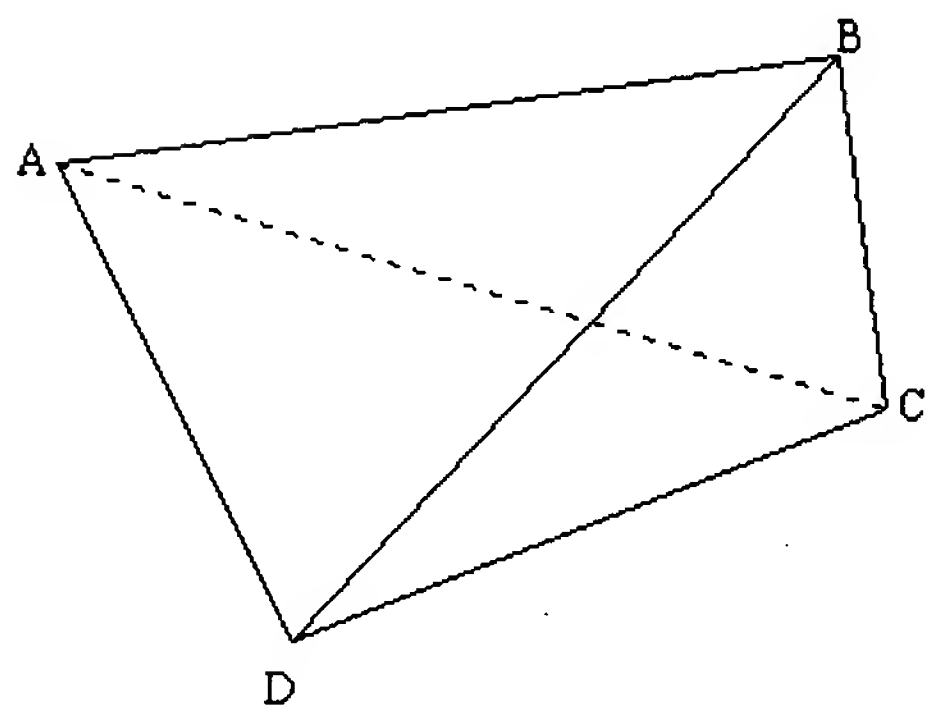


FIG.2

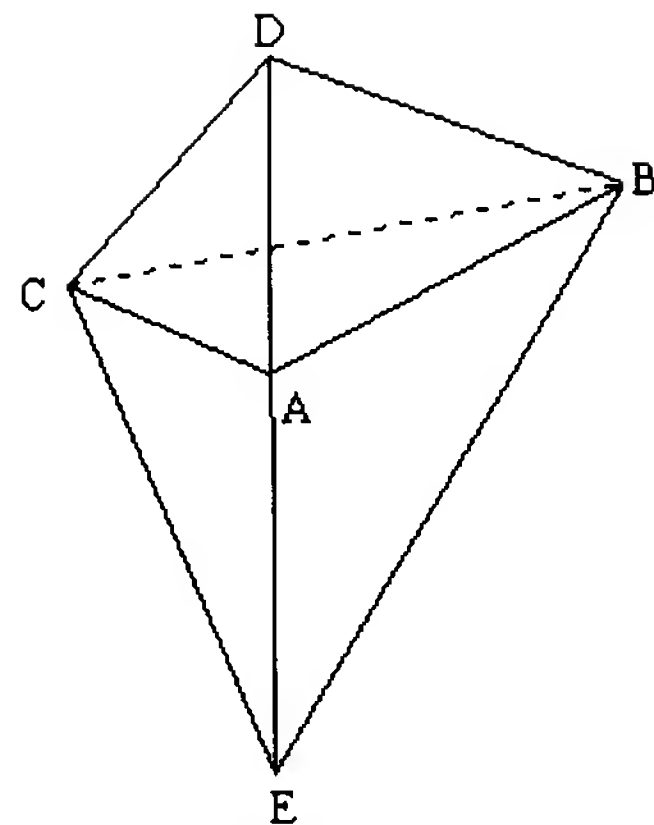


FIG.3

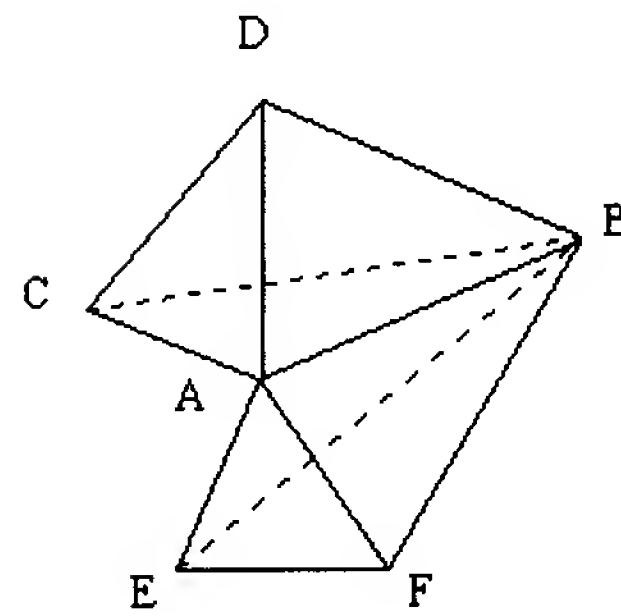


FIG.4

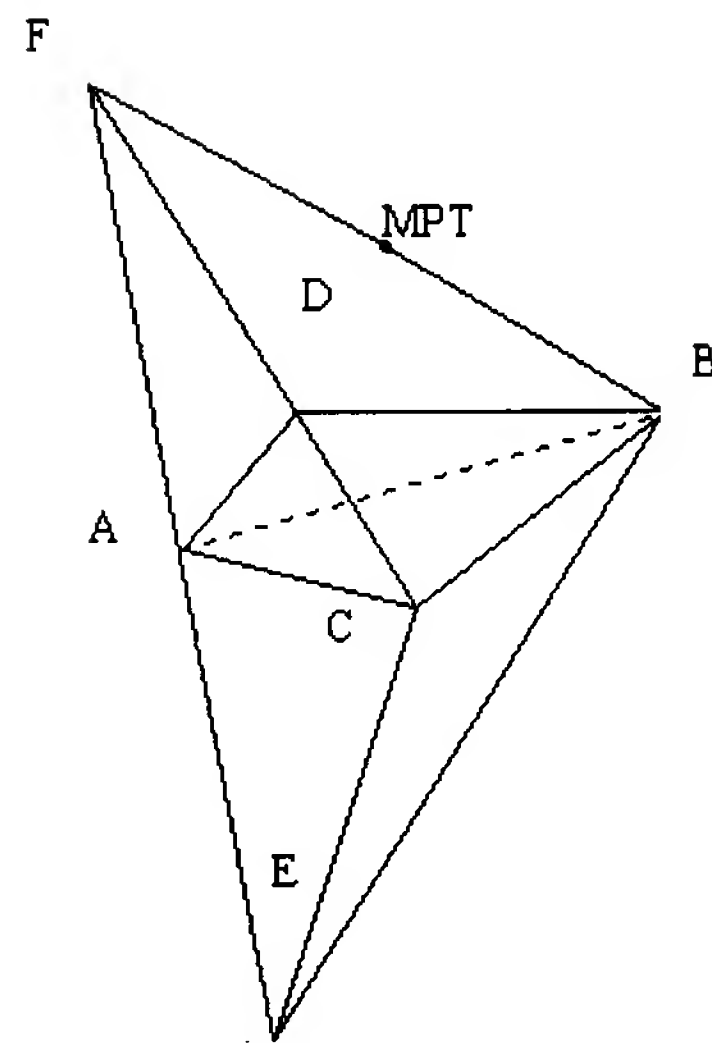


FIG.5

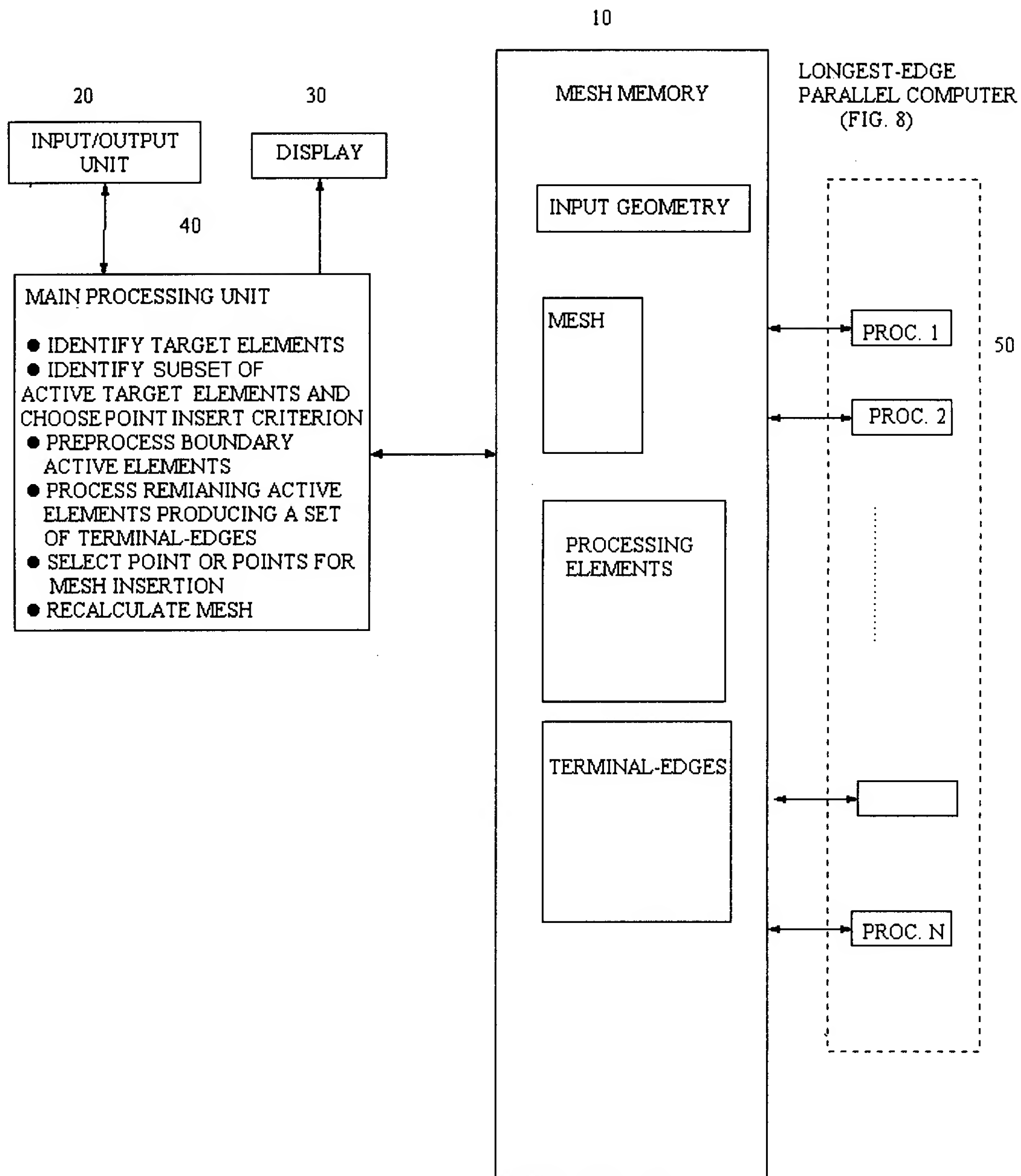


FIG.6

MAIN  
PROCESSING  
UNIT(40)

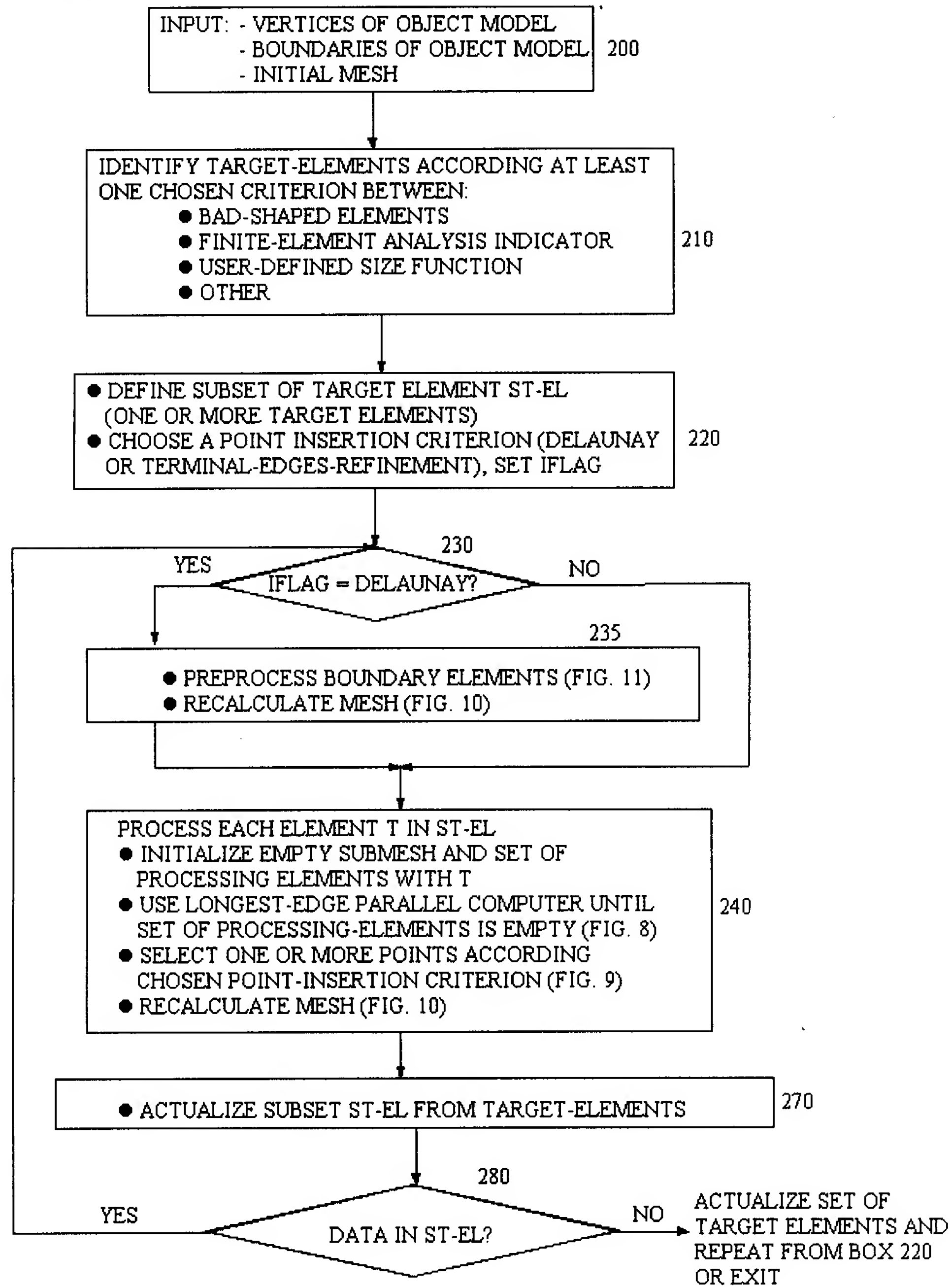


FIG. 7

# LONGEST-EDGE PARALLEL COMPUTER (50)

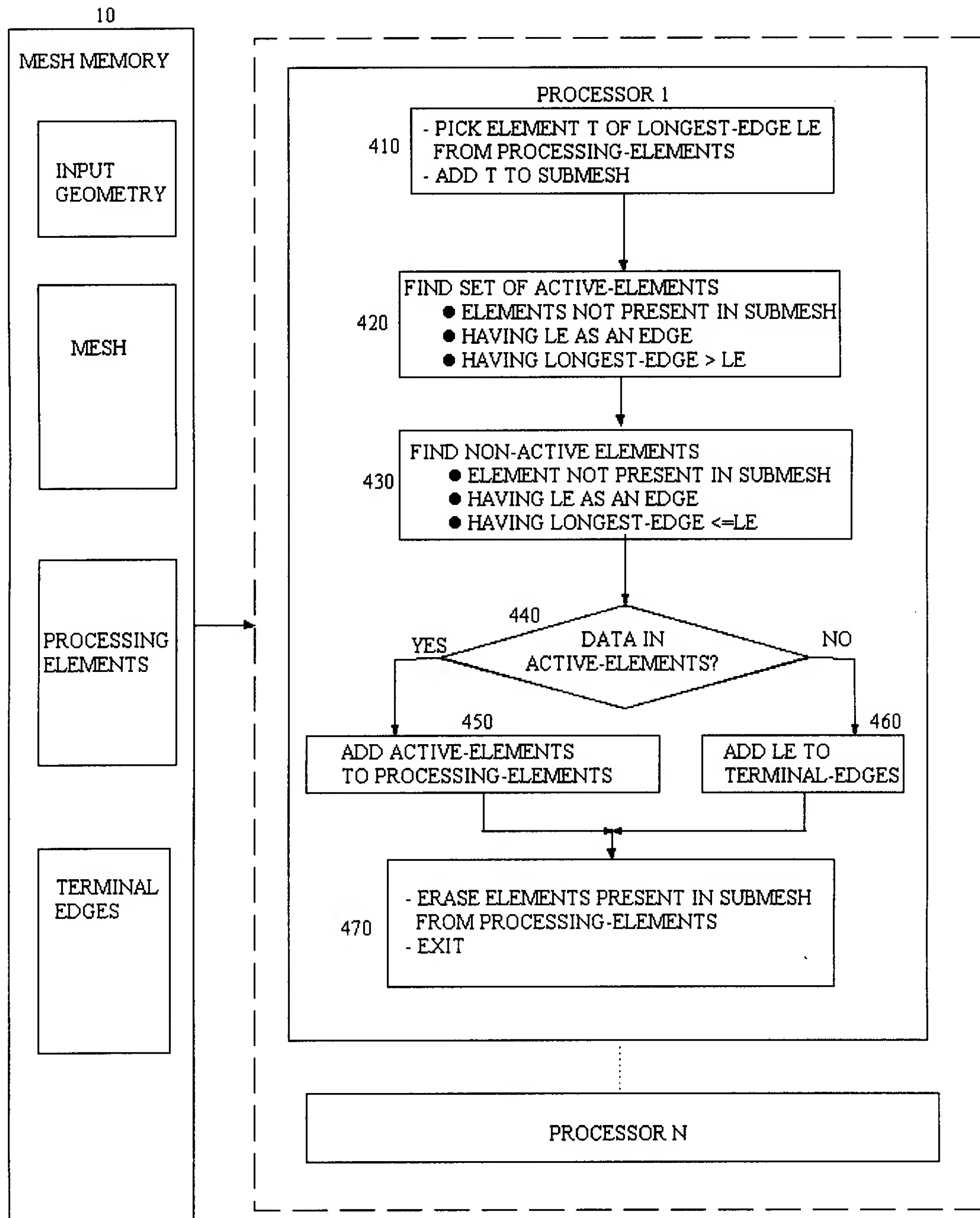


FIG.8

SELECT ONE OR MORE POINTS  
ACCORDING CHOSEN POINT INSERTION CRITERION  
(FROM BOX 240)

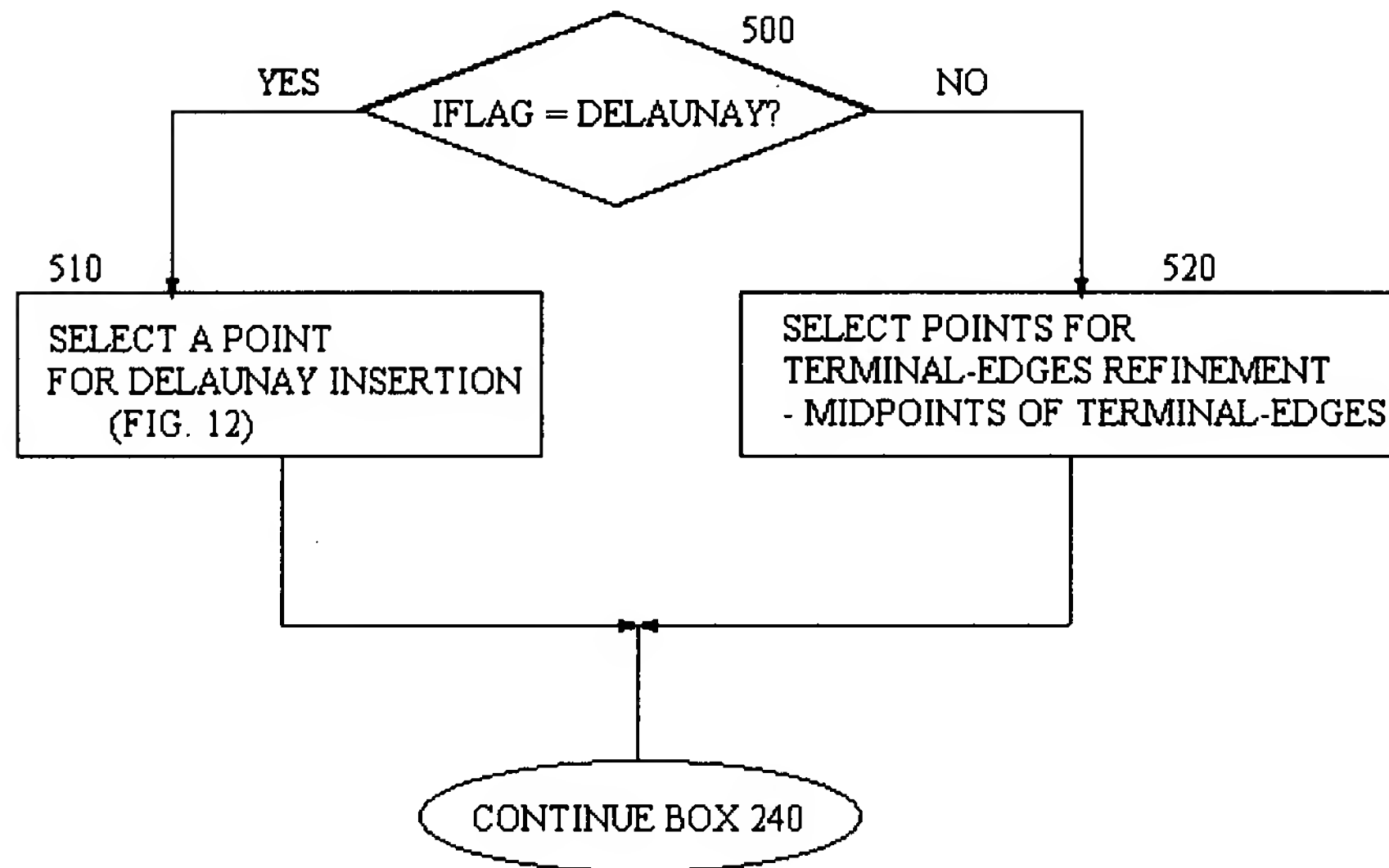


FIG. 9

RECALCULATE MESH  
(FROM BOX 235 OR 240)

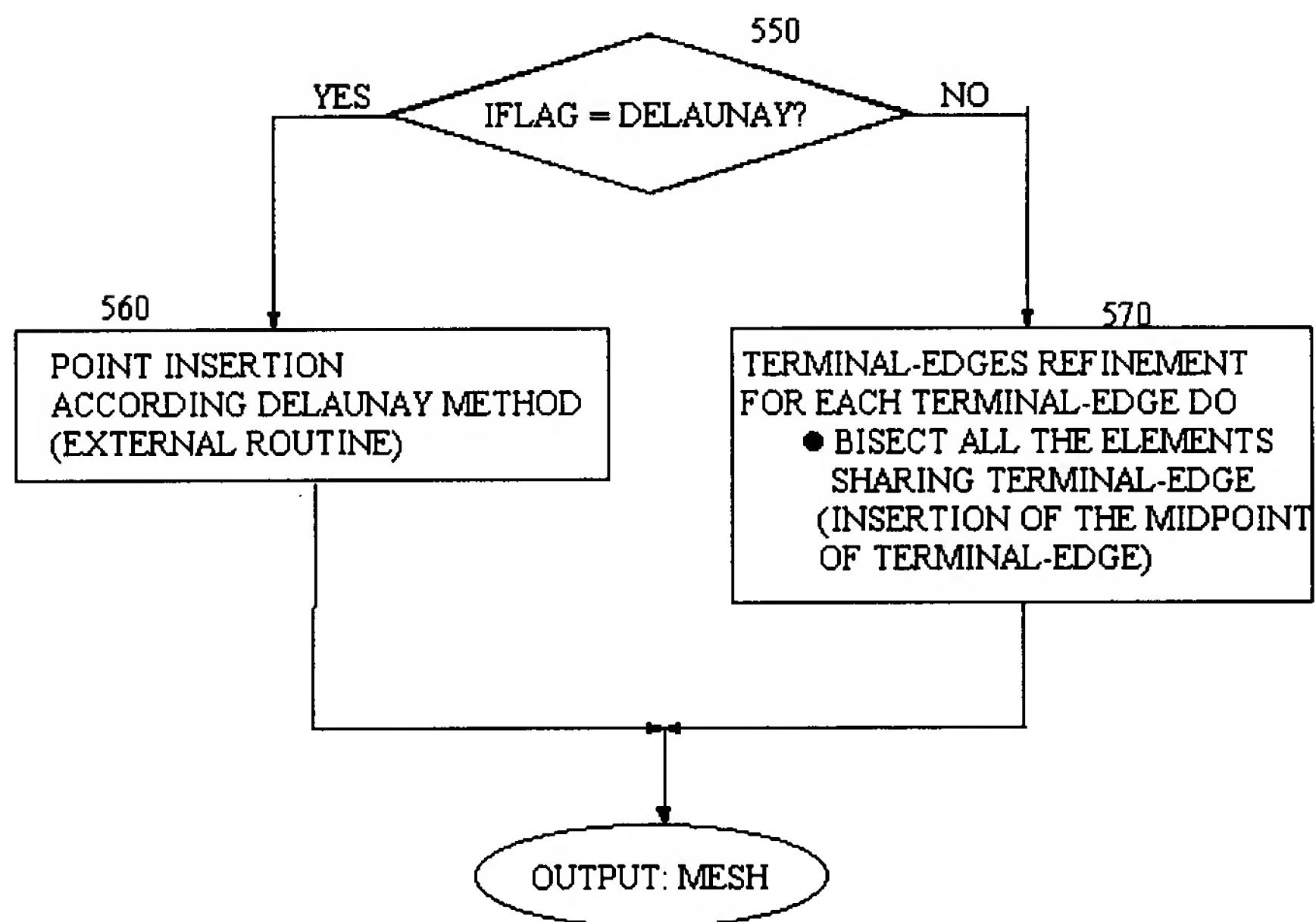


FIG. 10

PREPROCESS BOUNDARY ACTIVE ELEMENTS  
(FROM BOX 235)

DO FOR EACH  
ELEMENT T IN  
SUBSET ST-EL

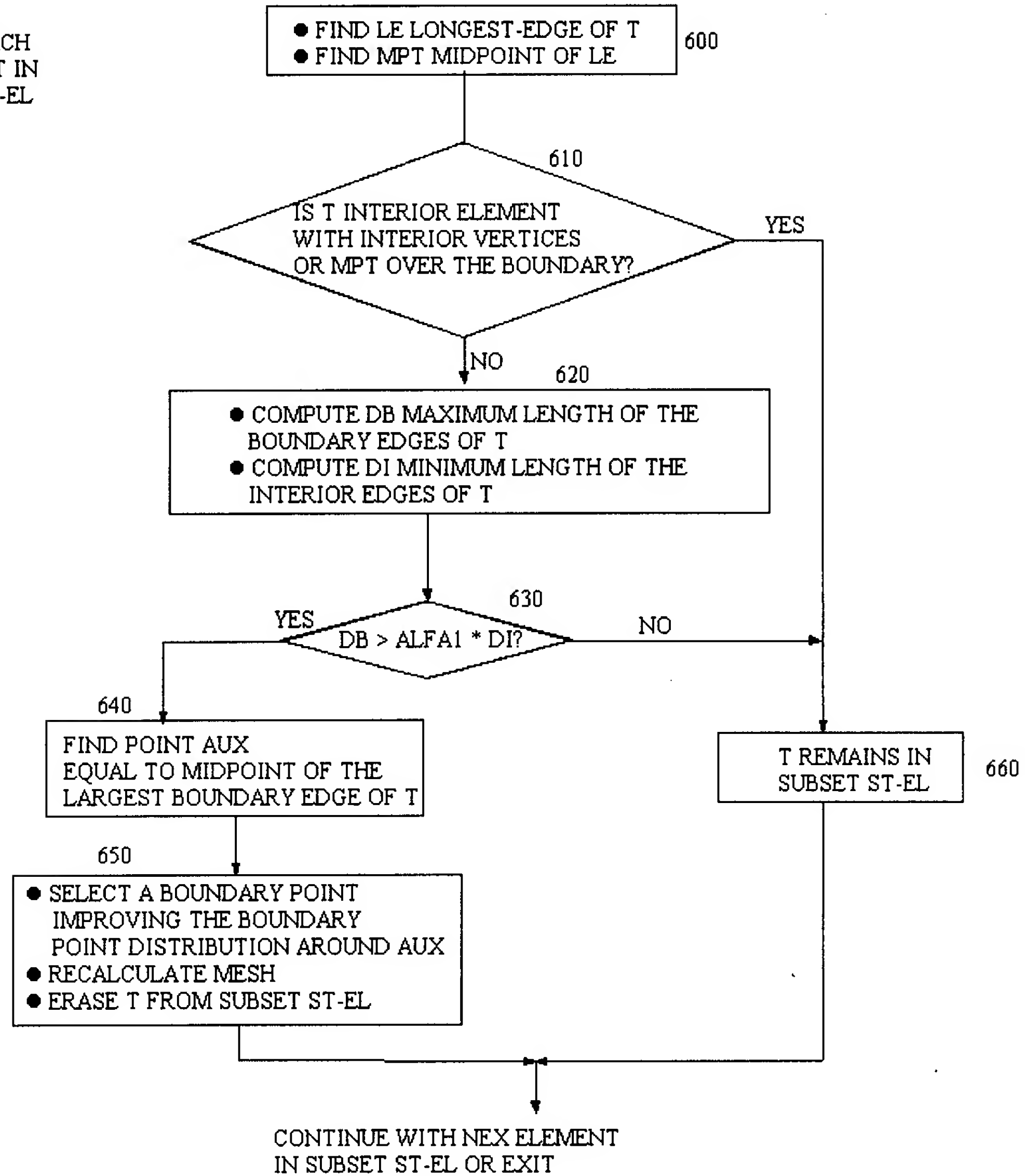


FIG. 11

SELECT A POINT FOR DELAUNAY INSERTION  
(FROM BOX 510)

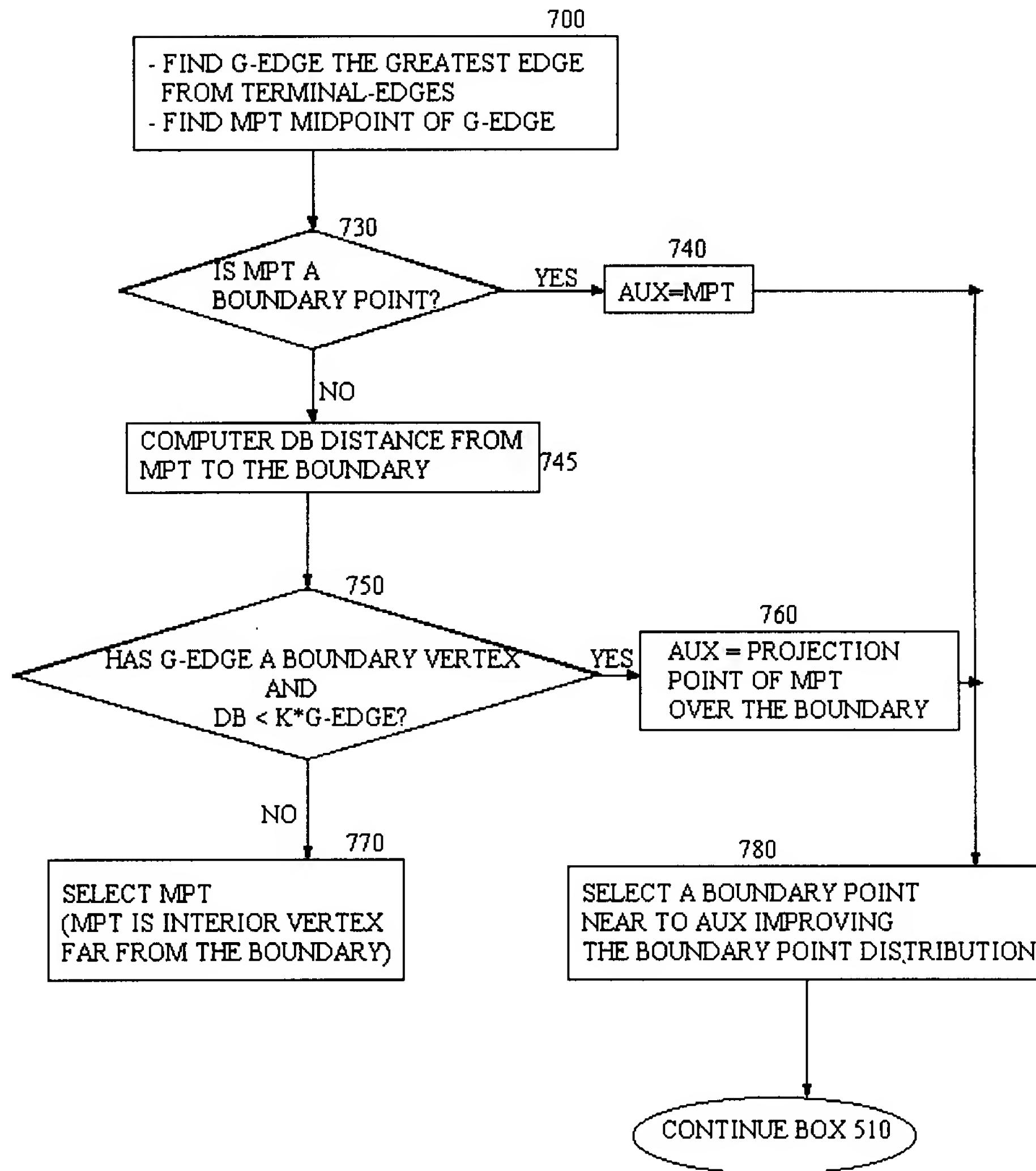


FIG. 12

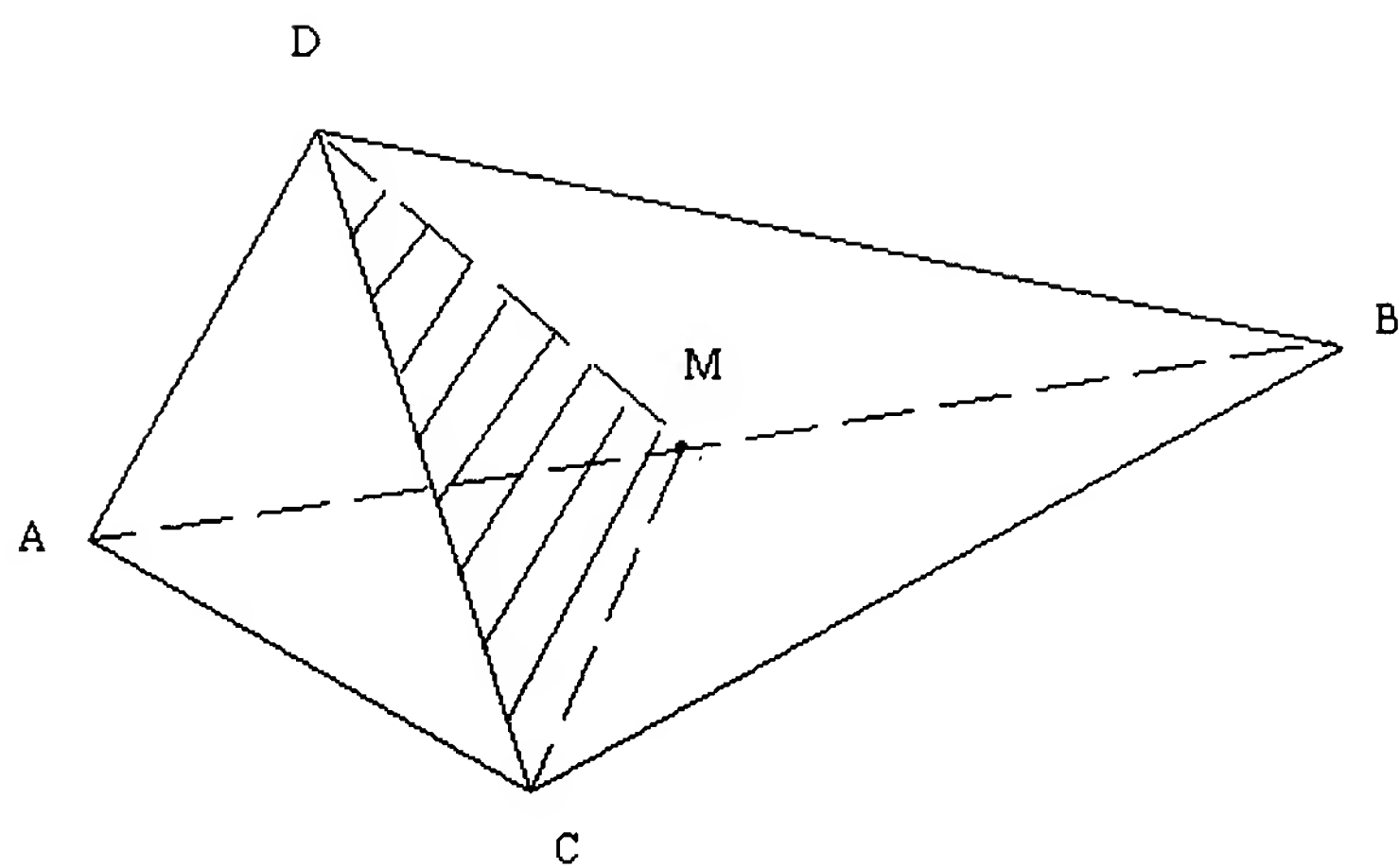


FIG. 13

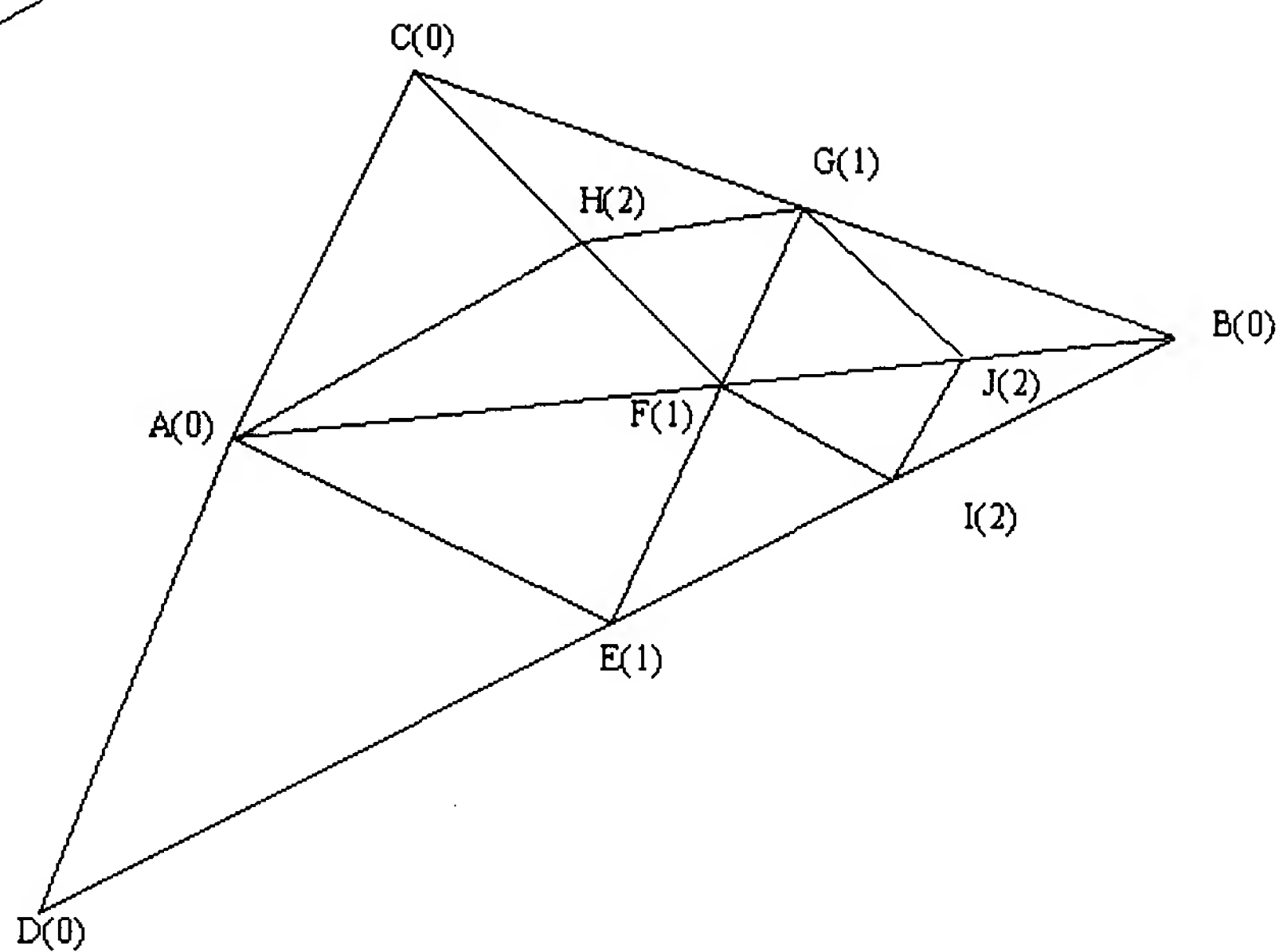


FIG. 14

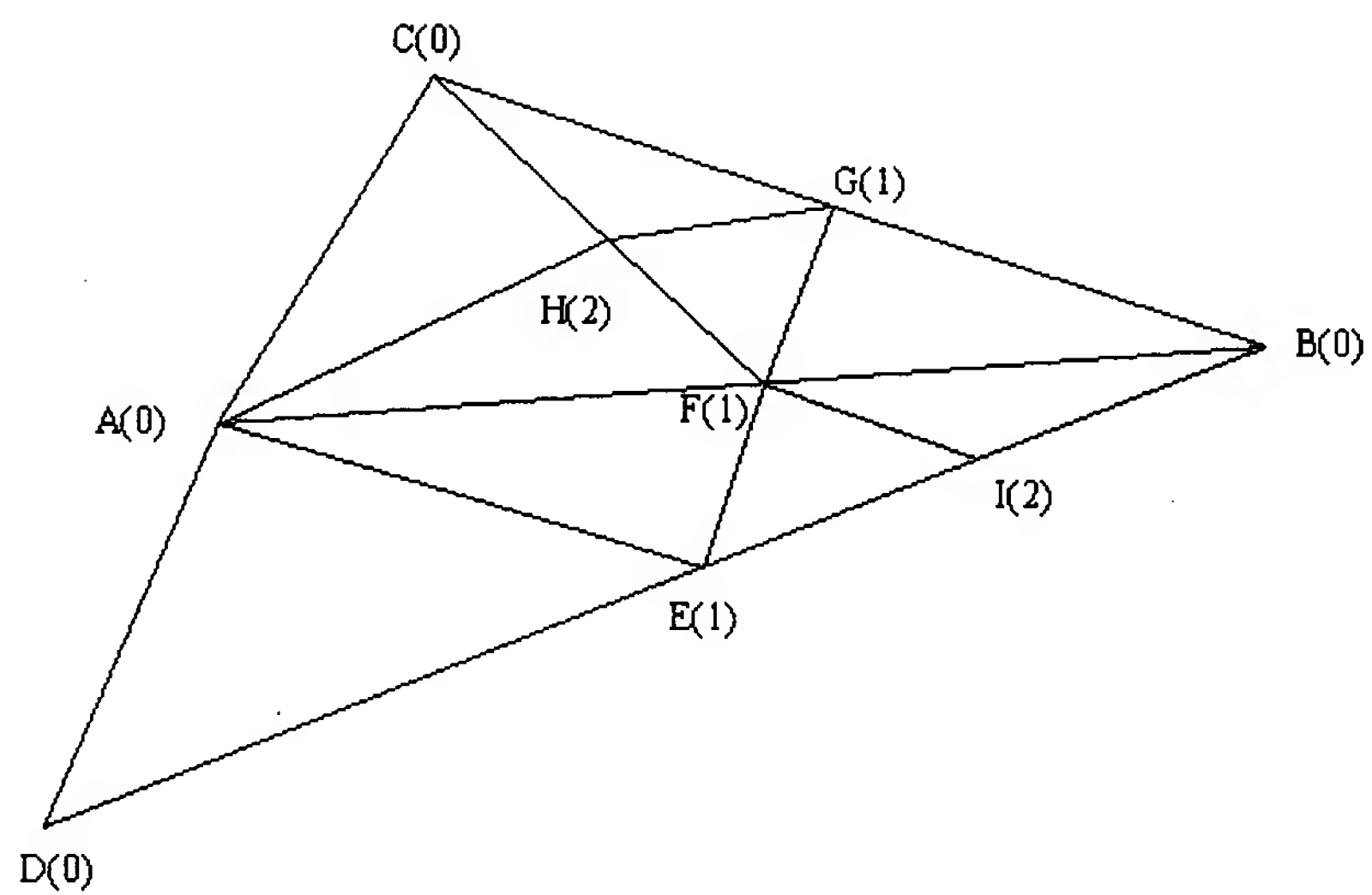


FIG. 15

Vertex	VE-IND	G-EDGE
A	0	NULL
B	0	NULL
C	0	NULL
D	0	NULL
E	1	DB
F	1	AB
G	1	CB
H	2	CF
I	2	EB
J	2	FB

FIG. 16



# LONGEST-EDGE MESH DATA STRUCTURE

<p>EDGE:</p> <p>PV1, PV2 LENGTH</p> <p>S1</p> <p>S2</p>	<p>Pointers to the two vertices of EDGE Length of EDGE</p> <p>Set of pointers to the elements having longest-edge equal to EDGE</p> <p>Set of pointers to the elements having EDGE as an edge and with longest-edge greater than EDGE; S2 is empty for terminal-edges</p>	800
<p>ELEMENT:</p> <p>PV1, PV2, PV3, PV4 PT1, PT2, PT3, PT4</p> <p>PLEDGE</p>	<p>Pointers to the four vertices of ELEMENT Pointers to the four face-neighbor elements</p> <p>Pointer to the longest-edge of ELEMENT in the EDGE representation</p>	820
<p>VERTEX:</p> <p>X1, X2, X3</p> <p>VE-IND</p> <p>PGENEDGE</p> <p>PELEMENT</p>	<p>Spatial coordinates of VERTEX</p> <p>Vertex indicator value; equal to 0 if VERTEX belongs to the initial mesh; equal to the successor of the maximum value between the VE-IND values of the vertices V1 and V2, such that VERTEX was obtained by longest-edge bisection of the elements sharing edge V1-V2, otherwise</p> <p>Pointer to the generator edge of VERTEX, that is to preceding edge whose bisection produced the vertex VERTEX</p> <p>Pointer to one of the elements that share said VERTEX</p>	840
<p>GEN-EDGE:</p> <p>PV1, PV2</p> <p>LENGTH</p>	<p>Pointers to the two vertices of the edge GEN-EDGE (this edge does not exist as an edge in the current mesh)</p> <p>Length of the edge GEN-EDGE</p>	860

FIG. 17

# INITIALIZATION OF THE LONGEST-EDGE MESH DATA STRUCTURE

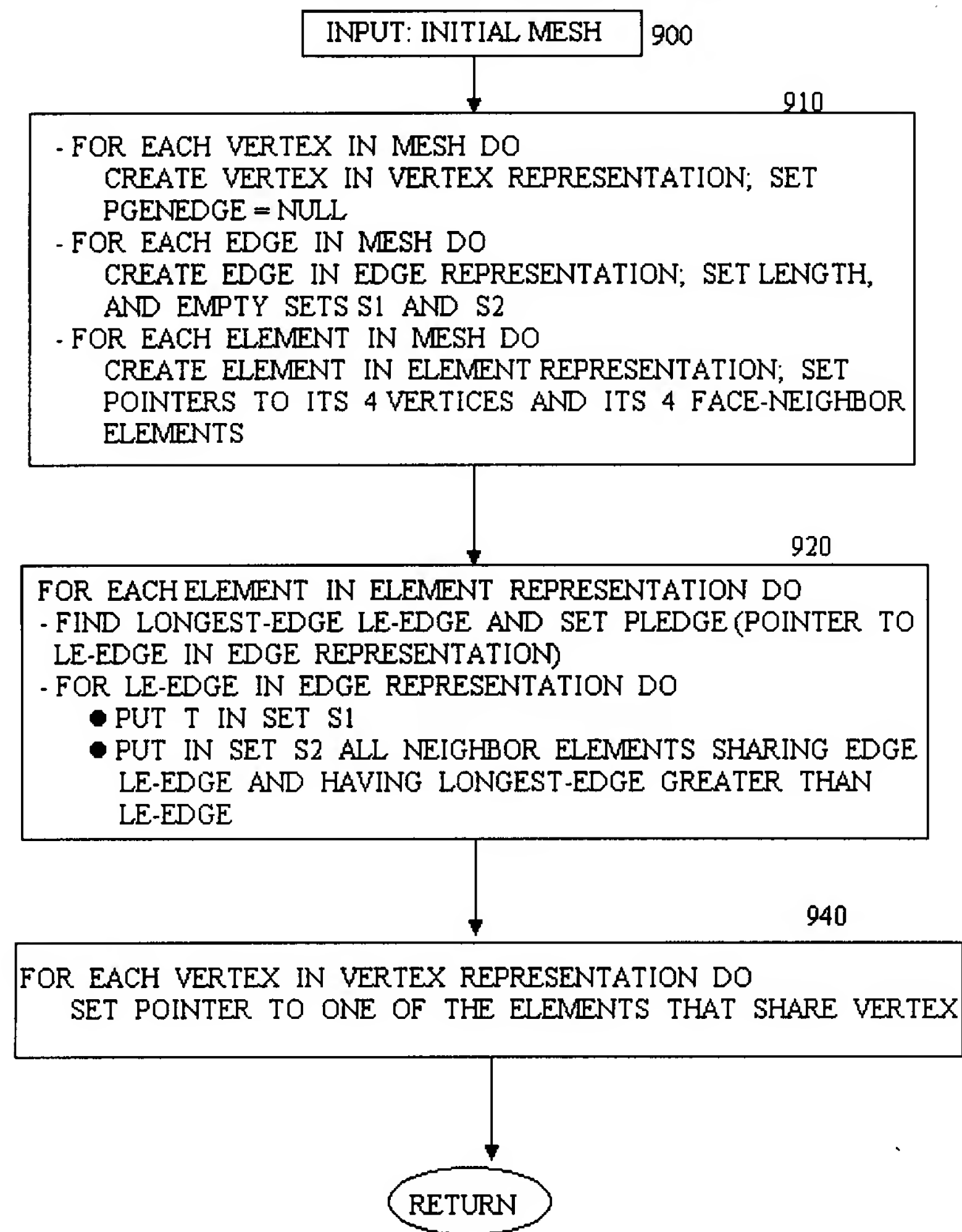


FIG. 18

MODIFICATION OF THE LONGEST-EDGE MESH DATA STRUCTURE  
BY VERTEX CREATION

(FROM BOX 1150 IN FIG. 20)

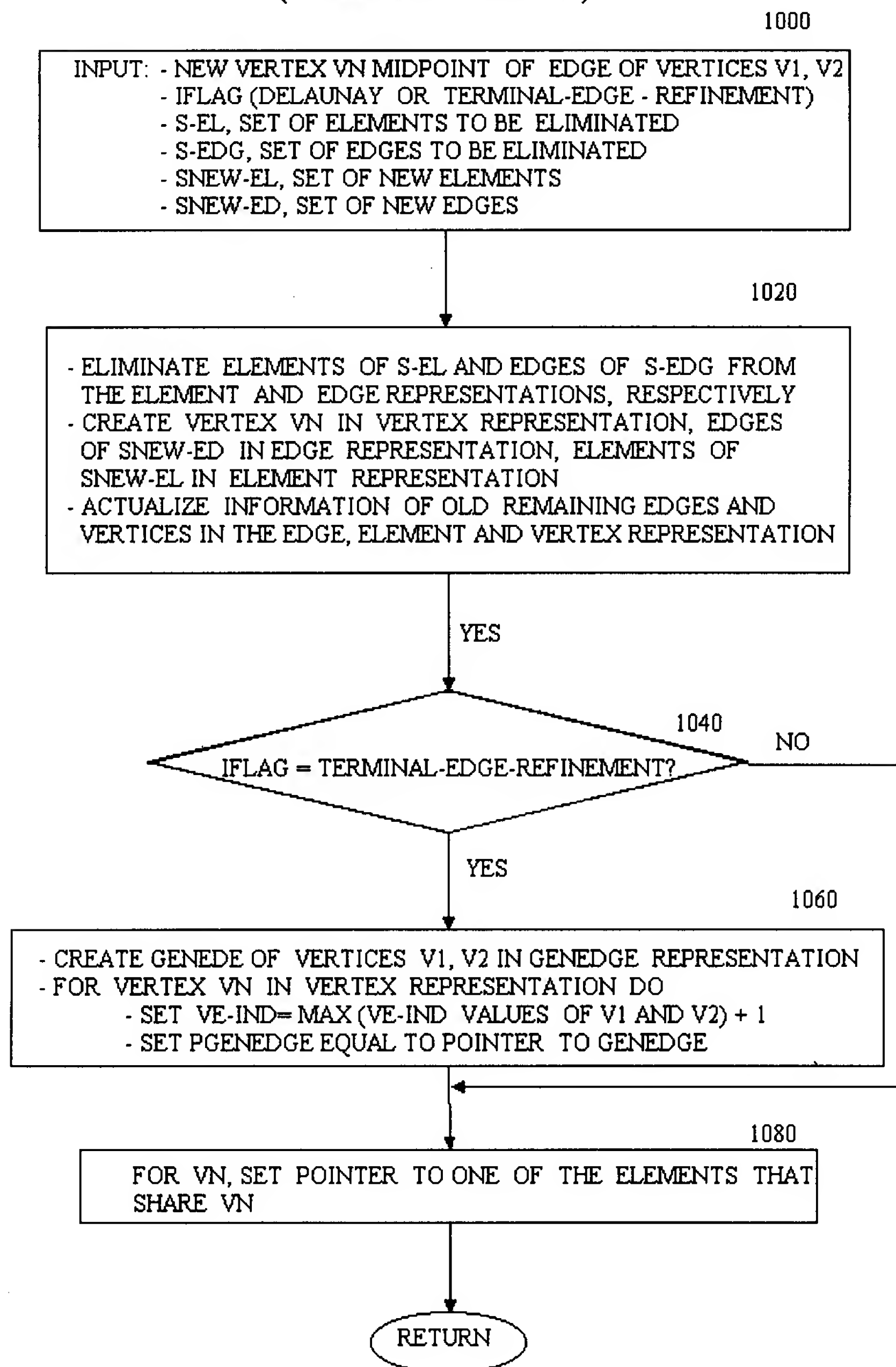


FIG.19

# PARALLEL COMPUTER FOR TERMINAL-EDGE REFINEMENT

(REPLACE BOX 570 IN FIG.10)

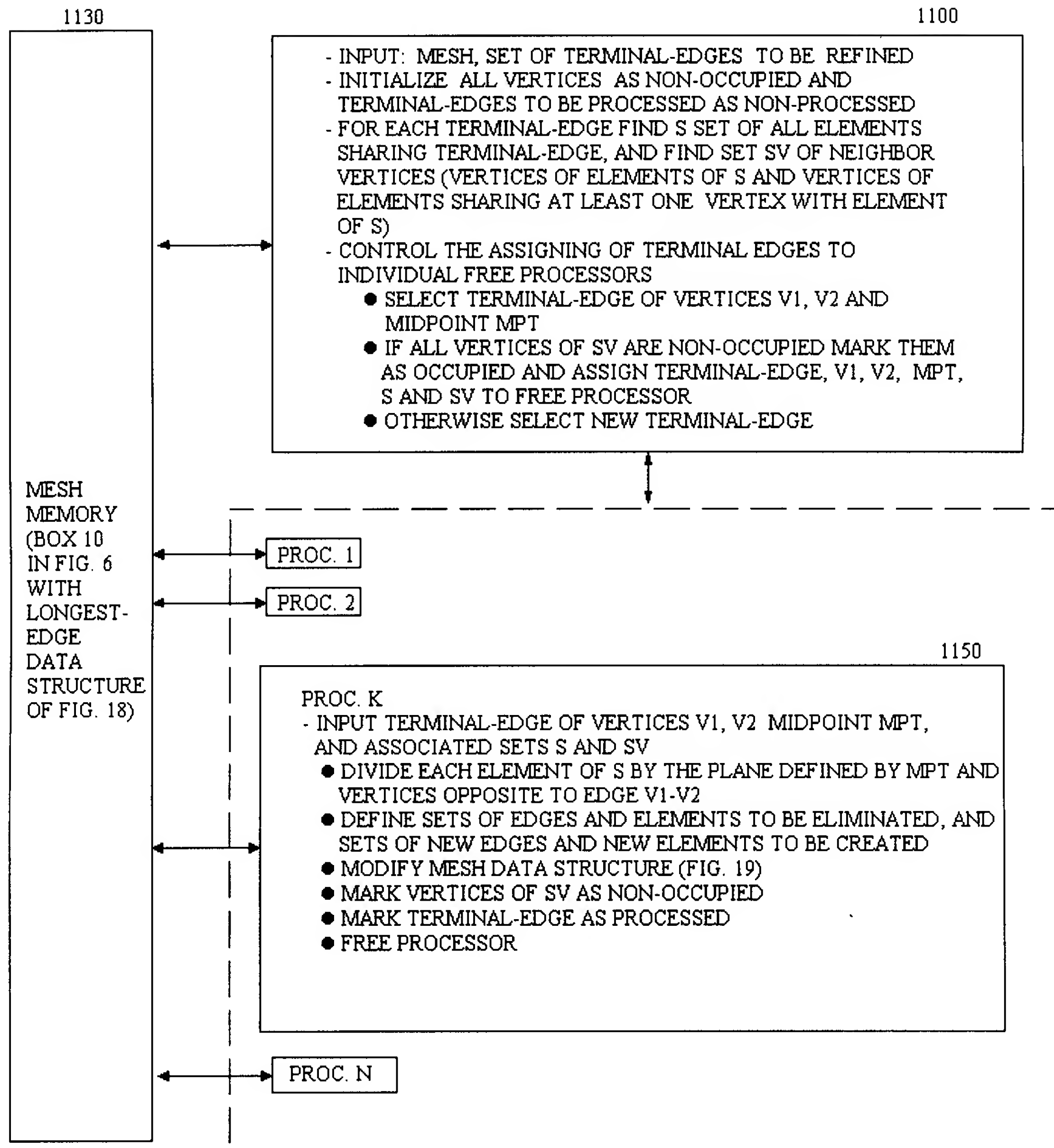


FIG. 20

# DEREFINEMENT METHOD

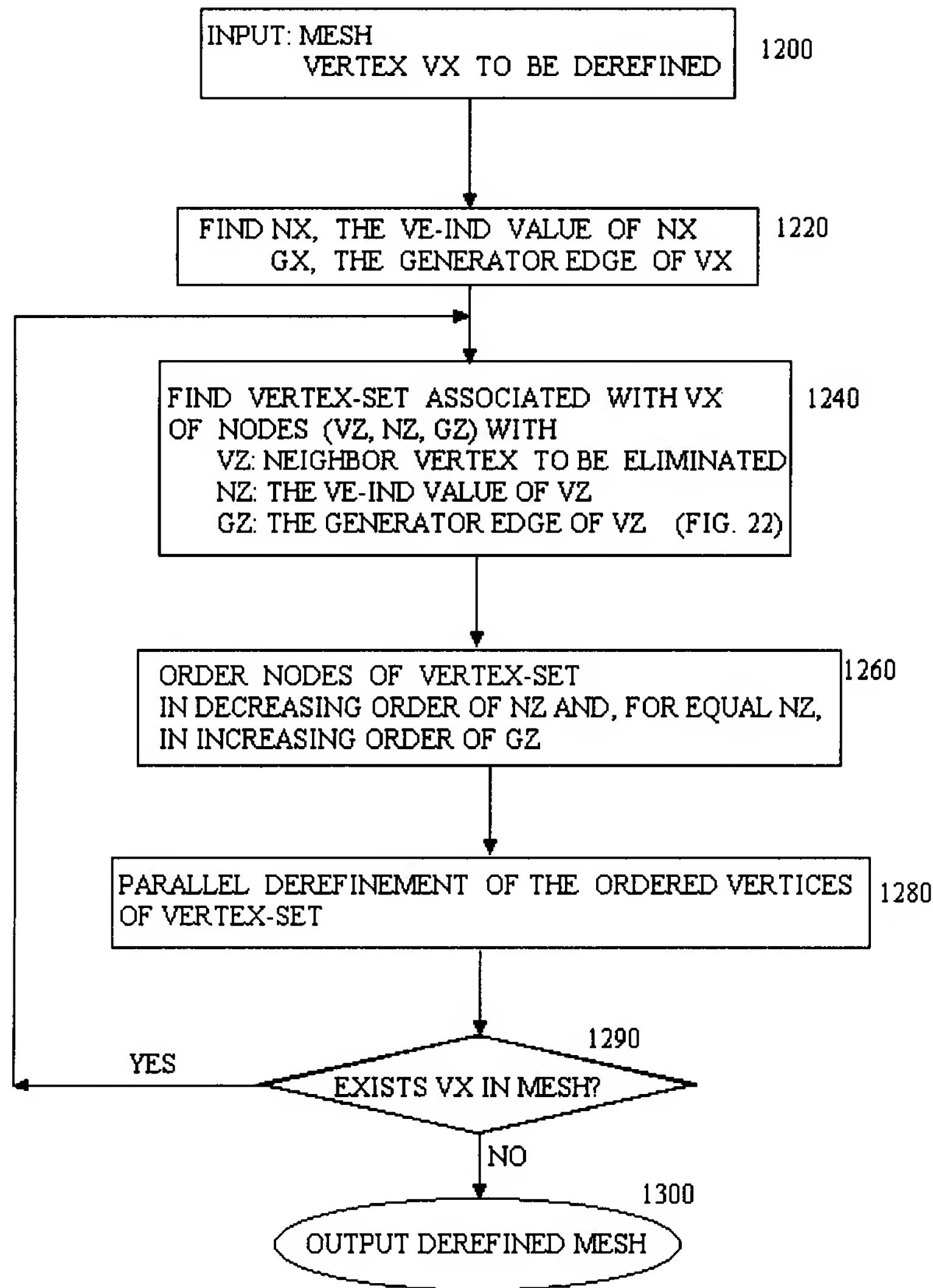
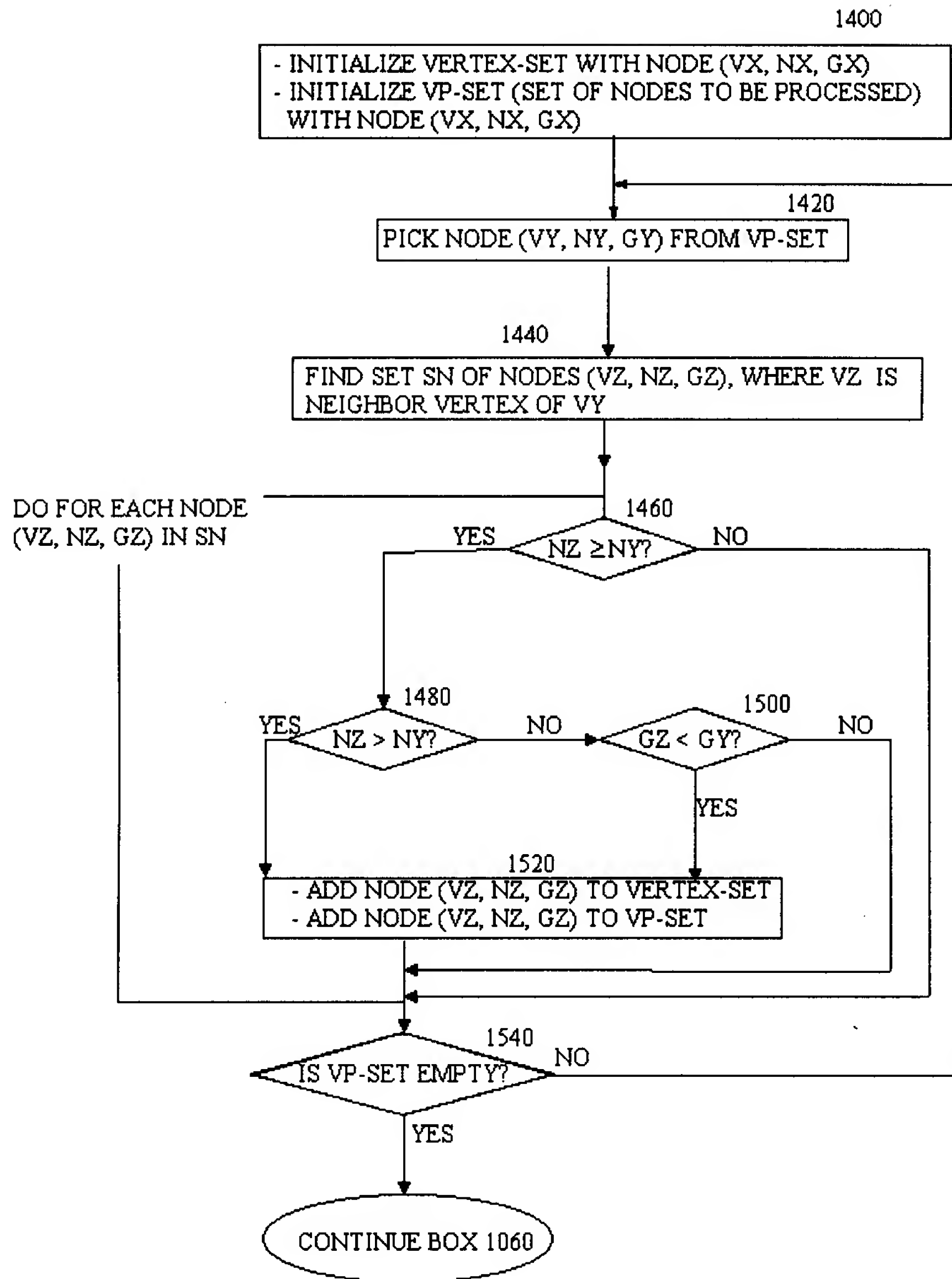


FIG. 21

**VERTEX-SET CONSTRUCTION**  
(FROM BOX 1040)



**FIG. 22**

**PARALLEL COMPUTER FOR TERMINAL-EDGE DEREFINEMENT**  
(FROM BOX 1280 IN FIG. 21)

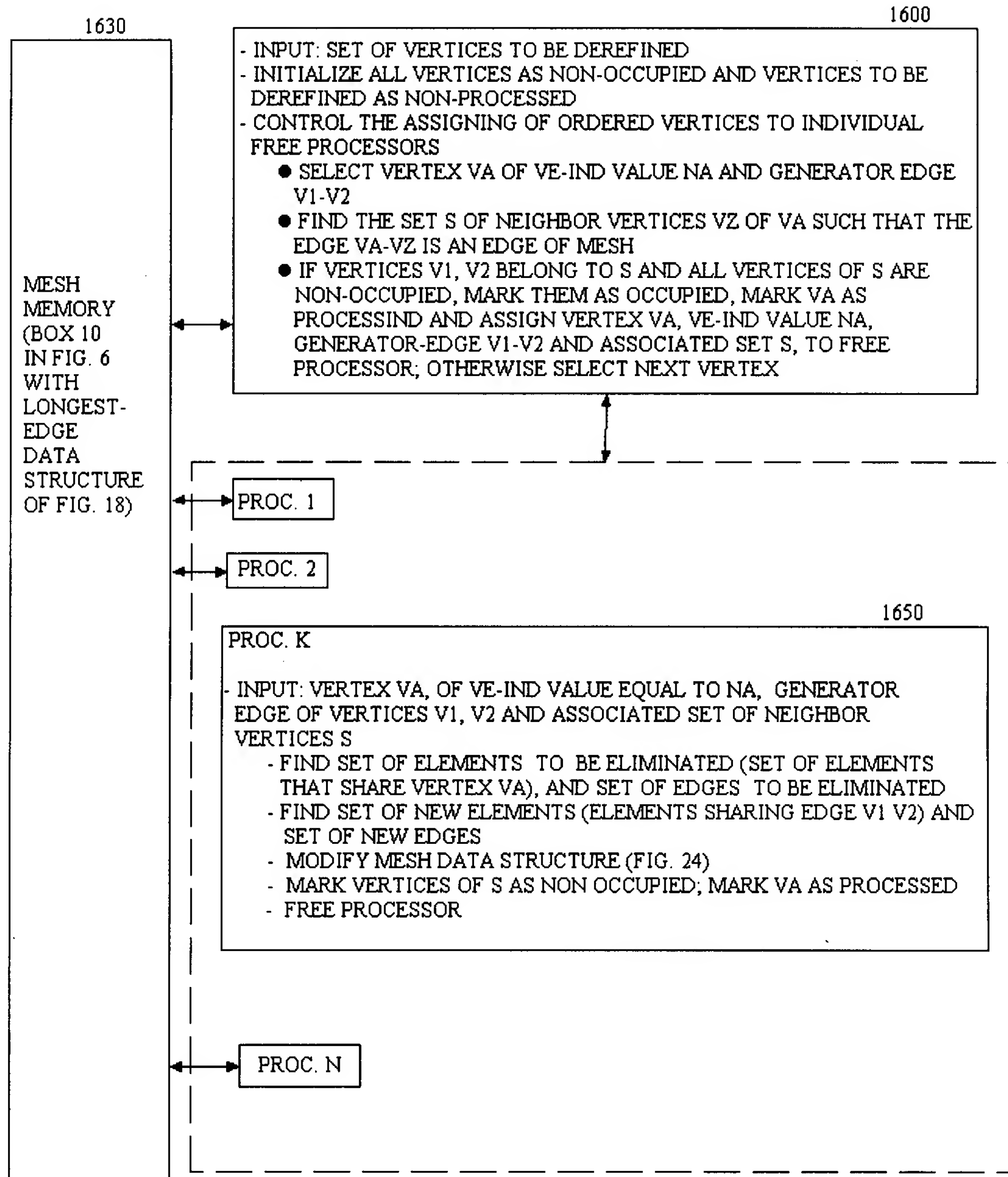
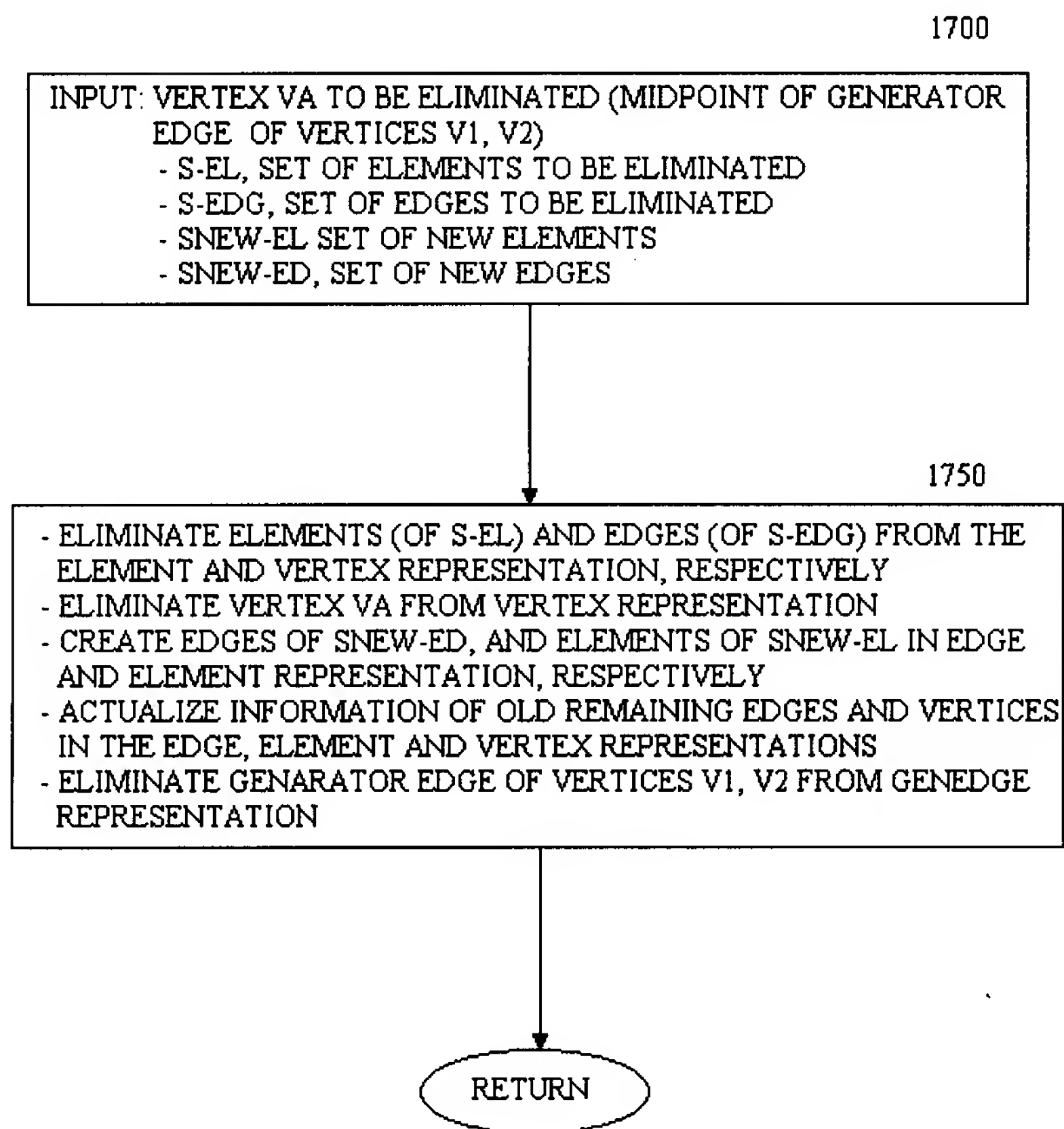


FIG. 23

**MODIFICATION OF THE LONGEST-EDGE MESH DATA STRUCTURE  
BY DEREFINEMENT (VERTEX ELIMINATION)**  
(FROM BOX 1650 IN FIG. 23)



**FIG. 24**



# INTEGRATED MESH GENERATION METHOD

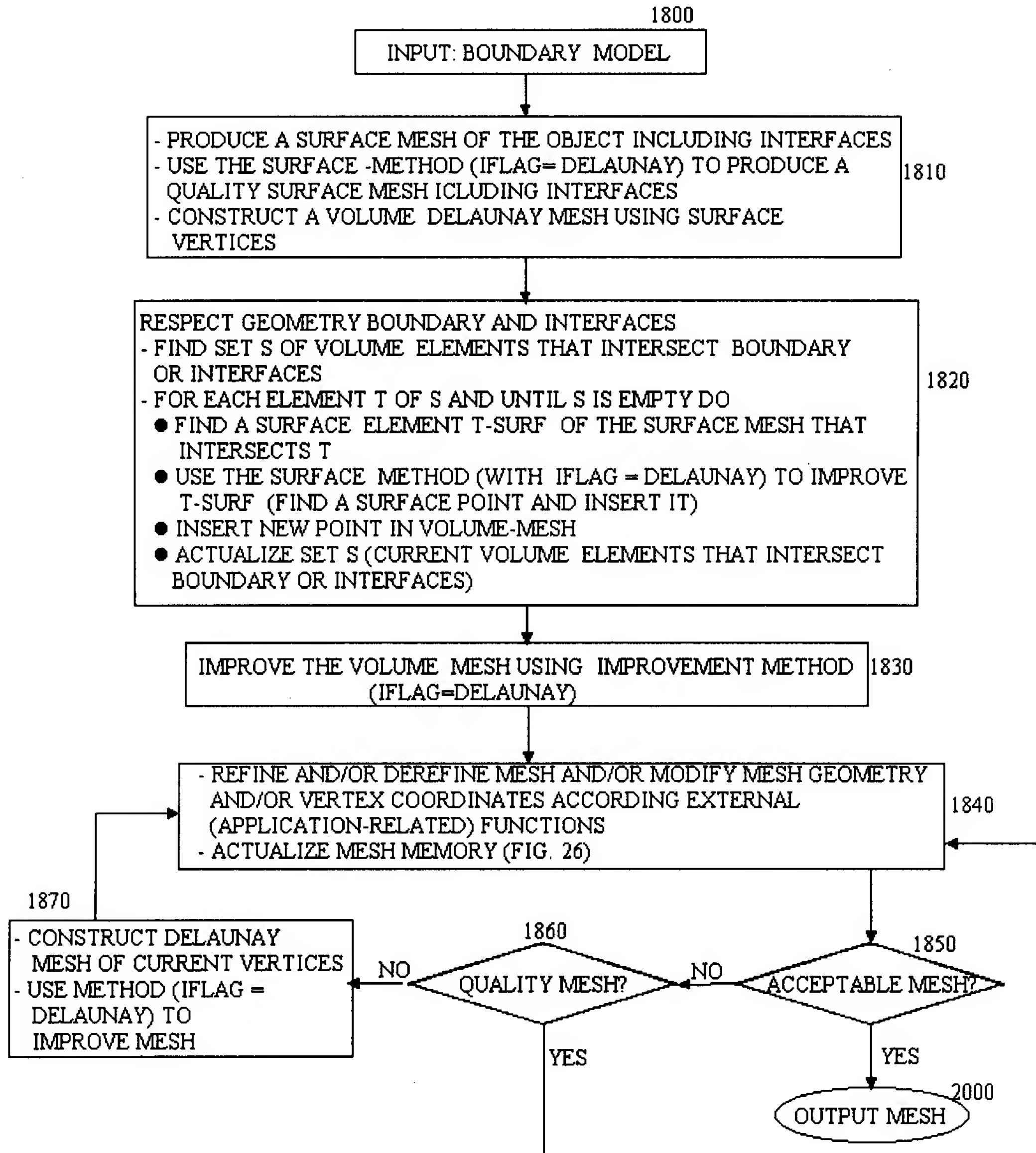


FIG. 25

ACTUALIZE LOCALLY MESH DATA STRUCTURE  
ACCORDING VERTEX CHANGES

(FROM BOX 1840)

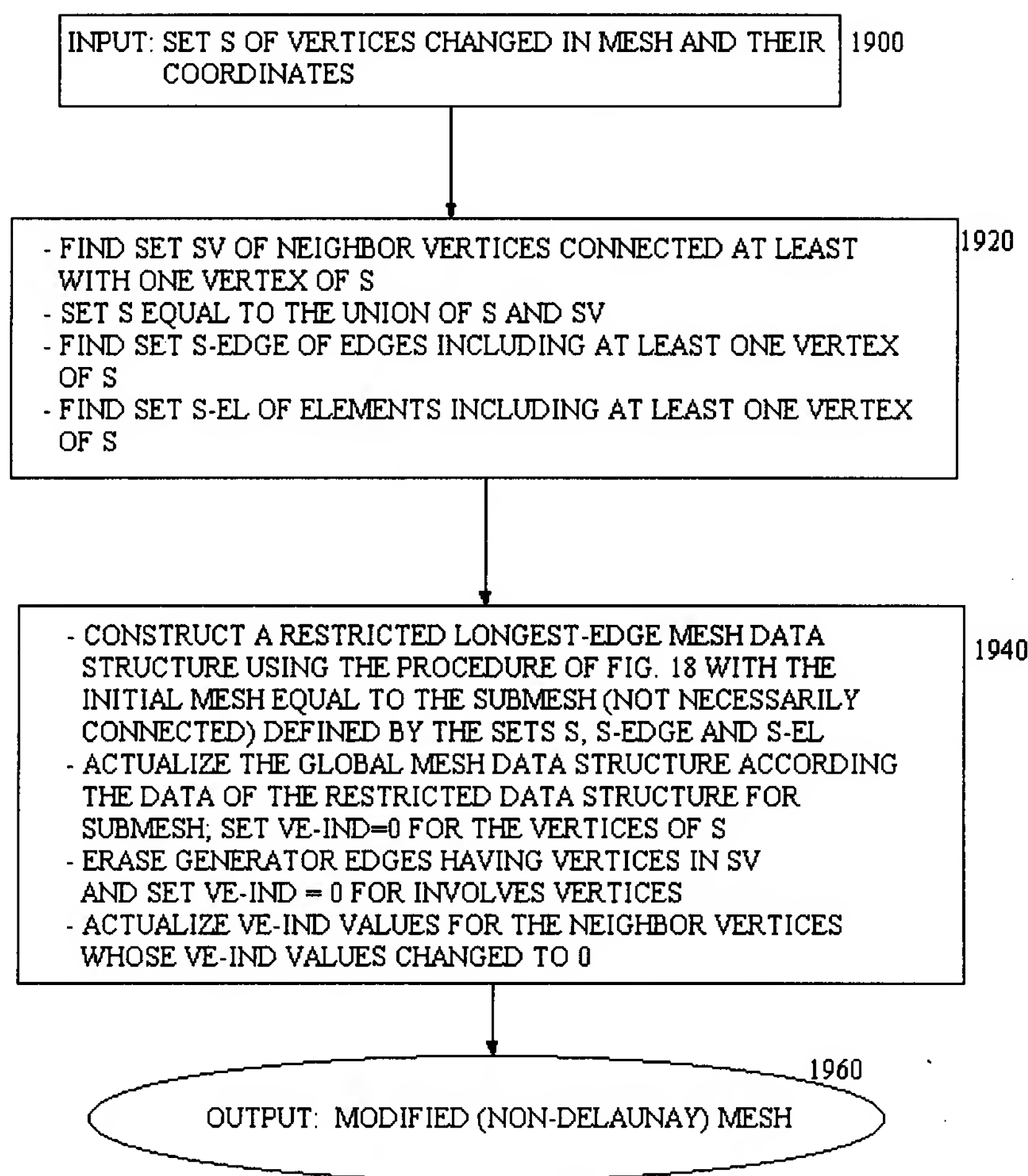


FIG. 26